ABSTRACT

To appropriately detect overload which may break a motor or deform a body and reduce the overload in the motor. The DC component of a load torque is derived from the sum of absolute values of a torque applied to a link connected to the output shaft of a motor and the generated torque of the motor, and it is determined that overload has been applied when the DC component exceeds a first threshold value for a prescribed period of time or longer. In addition, considering such a characteristic that the variation of energy applied to the output shaft of a motor is in proportion to a product of the torque and the angular velocity of the motor, the AC component of the load torque is detected based on the variation of energy, and it is predicted that overload will be applied when the AC component exceeds a second threshold value.